**Listing of Claims**:

Claims 1-8 (Canceled).

9. (Currently Amended) A radio-frequency electric current ablation catheter comprising:

a tip electrode;

a unit which detects a temperature of the tip electrode;

a catheter shaft; and

an operating portion at a proximal end,

wherein the tip electrode is formed of a single metallic body and a surface of the tip electrode comprises at least three spherical or approximately spherical surfaces which have centers on a same straight line and a reduced-diameter portion provided between each of the adjacent spherical or approximately spherical surfaces such that the adjacent spherical or approximately spherical surfaces are connected by a curved surface and are unbroken, wherein each said reduced-diameter portion has an outer diameter that is less than an outer diameter of each of the spherical or approximately spherical surfaces.

10. (Previously Presented) The ablation catheter according to Claim 9, wherein at least one of the spherical or approximately spherical surfaces is a surface selected from a spherical surface, a surface of an ellipsoid of revolution having

an axis on a central axis of the catheter, an egg-shaped surface having an axis on the central axis of the catheter and a hemispherical surface having an axis on the central axis of the catheter.

11. (Previously Presented) The ablation catheter according to Claim 9, wherein the tip electrode has a length of 0.5 to 15 mm and a maximum outer diameter of 0.5 to 3 mm.

12. (Previously Presented) The ablation catheter according to Claim 10, wherein the tip electrode has a length of 0.5 to 15 mm and a maximum outer diameter of 0.5 to 3 mm.

13. (Previously Presented) The ablation catheter according to Claim 11, wherein an average diameter of two adjacent spherical or approximately spherical surfaces is represented by D, a distance between the centers of the two adjacent spherical or approximately spherical surfaces is represented by d, and d/D is 0.1 to 2 for each combination of two adjacent spherical or approximately spherical surfaces.

14. (Previously Presented) The ablation catheter according to Claim 12, wherein an average diameter of two adjacent spherical or approximately spherical surfaces is represented by

D, a distance between the centers of the two adjacent spherical or approximately spherical surfaces is represented by d, and d/D is 0.1 to 2 for each combination of two adjacent spherical or approximately spherical surfaces.

15. (Previously Presented) The ablation catheter according to Claim 11, wherein an average diameter of two adjacent spherical or approximately spherical surfaces is represented by D, a distance between the centers of the two adjacent spherical or approximately spherical surfaces is represented by d, and d/D is 0.5 to 1.25 for each combination of two adjacent spherical or approximately spherical surfaces.

16. (Previously Presented) The ablation catheter according to Claim 12, wherein an average diameter of two adjacent spherical or approximately spherical surfaces is represented by D, a distance between the centers of the two adjacent spherical or approximately spherical surfaces is represented by d, and d/D is 0.5 to 1.25 for each combination of two adjacent spherical or approximately spherical surfaces.

17. (Previously Presented) The ablation catheter according to Claim 9, wherein the tip electrode has a length of 1 to 12 mm and a maximum outer diameter of 1 to 2.7 mm.

18. (Previously Presented) The ablation catheter according to Claim 10, wherein the tip electrode has a length of 1 to 12 mm and a maximum outer diameter of 1 to 2.7 mm.

19. (Previously Presented) The ablation catheter according to Claim 17, wherein an average diameter of two adjacent spherical or approximately spherical surfaces is represented by D, a distance between the centers of the two adjacent spherical or approximately spherical surfaces is represented by d, and d/D is 0.1 to 2 for each combination of two adjacent spherical or approximately spherical surfaces.

20. (Previously Presented) The ablation catheter according to Claim 18, wherein an average diameter of two adjacent spherical or approximately spherical surfaces is represented by D, a distance between the centers of the two adjacent spherical or approximately spherical surfaces is represented by d, and d/D is 0.1 to 2 for each combination of two adjacent spherical or approximately spherical surfaces.

21. (Previously Presented) The ablation catheter according to Claim 17, wherein an average diameter of two adjacent spherical or approximately spherical surfaces is represented by D, a distance between the centers of the two adjacent spherical

or approximately spherical surfaces is represented by d, and d/D is 0.5 to 1.25 for each combination of two adjacent spherical or approximately spherical surfaces.

22. (Previously Presented) The ablation catheter according to Claim 18, wherein an average diameter of two adjacent spherical or approximately spherical surfaces is represented by D, a distance between the centers of the two adjacent spherical or approximately spherical surfaces is represented by d, and d/D is 0.5 to 1.25 for each combination of two adjacent spherical or approximately spherical surfaces.

23. (Previously Presented) The ablation catheter according to claim 9, wherein a shape of a longitudinal section of the curved surface is a smoothly curved line, a first end of the curved line is tangent to a circle or an approximate circle which is a shape of a longitudinal section of one of the adjacent spherical or approximately spherical surfaces, a second end of said curved line is tangent to another circle or approximate circle which is a shape of a longitudinal section of another of the adjacent spherical or approximately spherical surfaces, and the curved line is closest to said straight line at an approximately middle point between the first and second ends.

24. (Currently Amended) The ablation catheter according to claim 9, wherein the tip electrode is formed of a material selected from the group consisting of gold, stainless steel, platinum, platinum-iridium alloys, platinum-tungsten alloys, and ~~tickel-titanium~~ nickel-titanium shape memory alloys.